TENSION TESTING PROCEDURE FOR MuTr STATIONS 2&3 OCTANTS

procedure name

PHENIX Procedure No. PP-2.5.2.12-03

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Hand Processed Changes

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Approvals

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PHENIX S E & I Date

Cognizant Scientist/Engineer Date
/Activity Manager

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PHENIX QA/Safety Date

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REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	9/1/1999	n/a	R. Towell, W. Lenz, A. Etkin	n/a
RETIRED	Tests Completed	3/9/2007	n/a	D. Lynch, R. Pisani, P Giannotti for PHENIX	D. Lynch

Procedure for tension testing on Muon Tracking Station 2 and Station 3 Octants

1. Purpose and Scope
   1.1. This procedure describes the proper operation of the two wire winding machines in the Muon Tracker tent to test the tension of the wires on the station 2 and 3 octants.
2. Responsibilities
   2.1. Only people properly trained on the operation of these machines may use them. Rusty Towell is the authorized person to approve people to operate these machines. Dave Lee is his alternate.
3. Prerequisites
   3.1. Before entering the clean room put on booties, white coat, and white bonnet.
   3.2. The emergency stop tests must be current according to PHENIX Procedure Number PP-2.5.2.12-06.
4. Precautions
   4.1. Prior to operation the operator must announce that he/she is preparing to move the boom to all persons in the area.
5. Electrical and Gas setup
   5.1. Below is a diagram showing the basic electrical and gas setup.

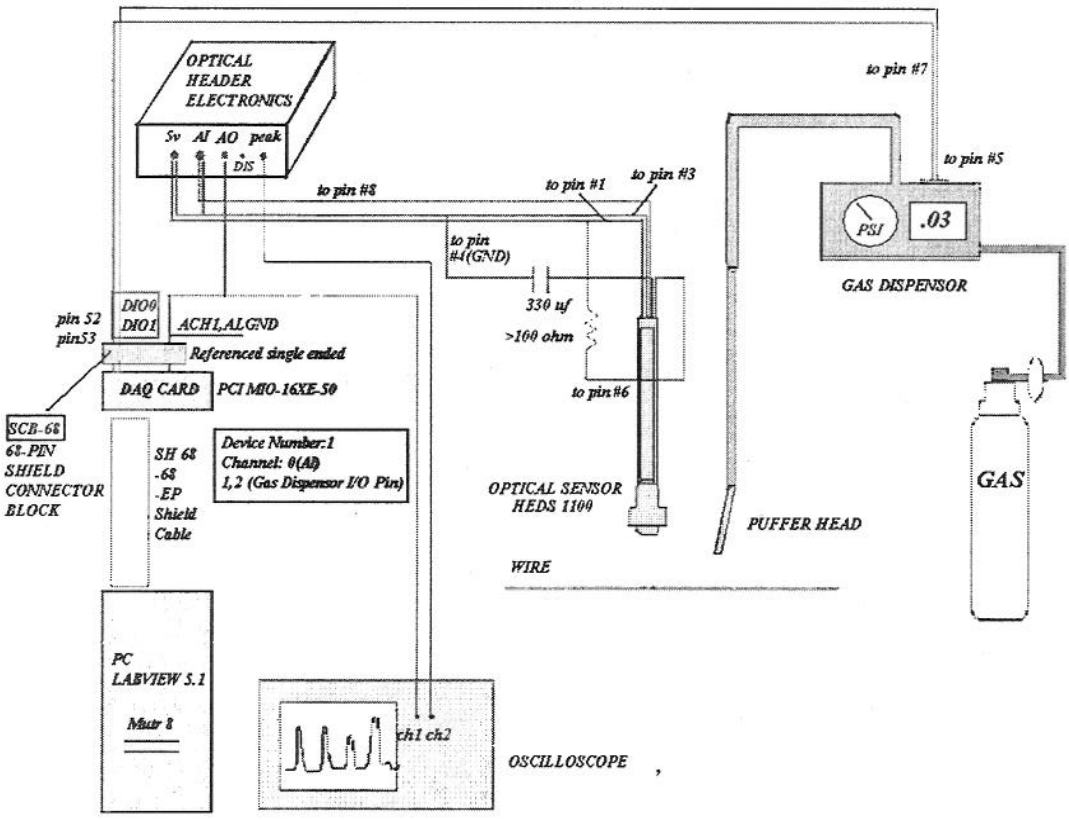

Figure 1 (Electrical and gas setup)

6. EMERGENCY STOP
   6.1. There is a gray box with a large red push-button on top, set on the table just in front of the tower (figure 2). If it is necessary to stop motion immediately, this button may be pushed in order to cut power to the motor.
   6.2. There are also two smaller metal boxes with red buttons that can be pressed to stop motion of the carriage along the boom. These are located on the farthest end of the boom, and between the tower and the gray power cutoff box (figures 2 and 3).
   6.3. The emergency stop buttons must be tested according to PHENIX Procedure Number PP-2.5.2.12-06.

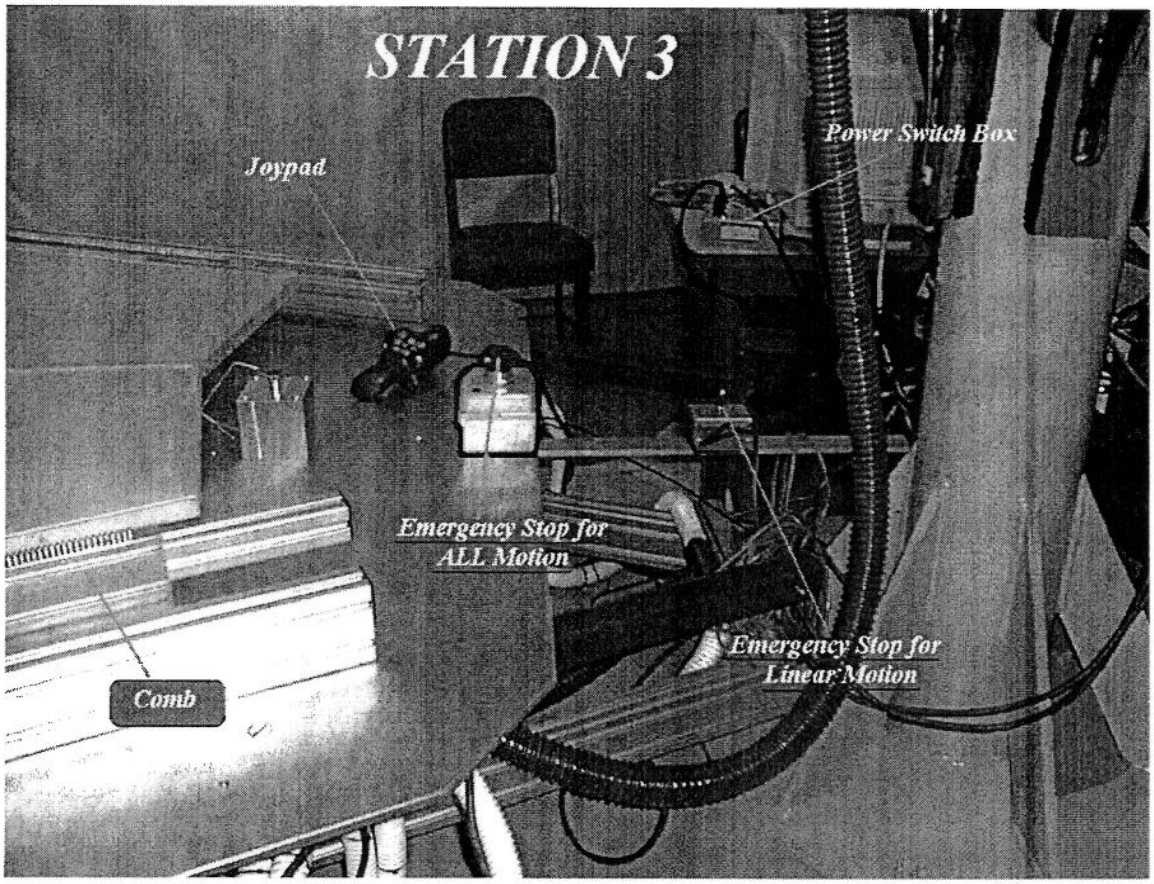

Figure 2 (Station 3, two emergency stops shown)

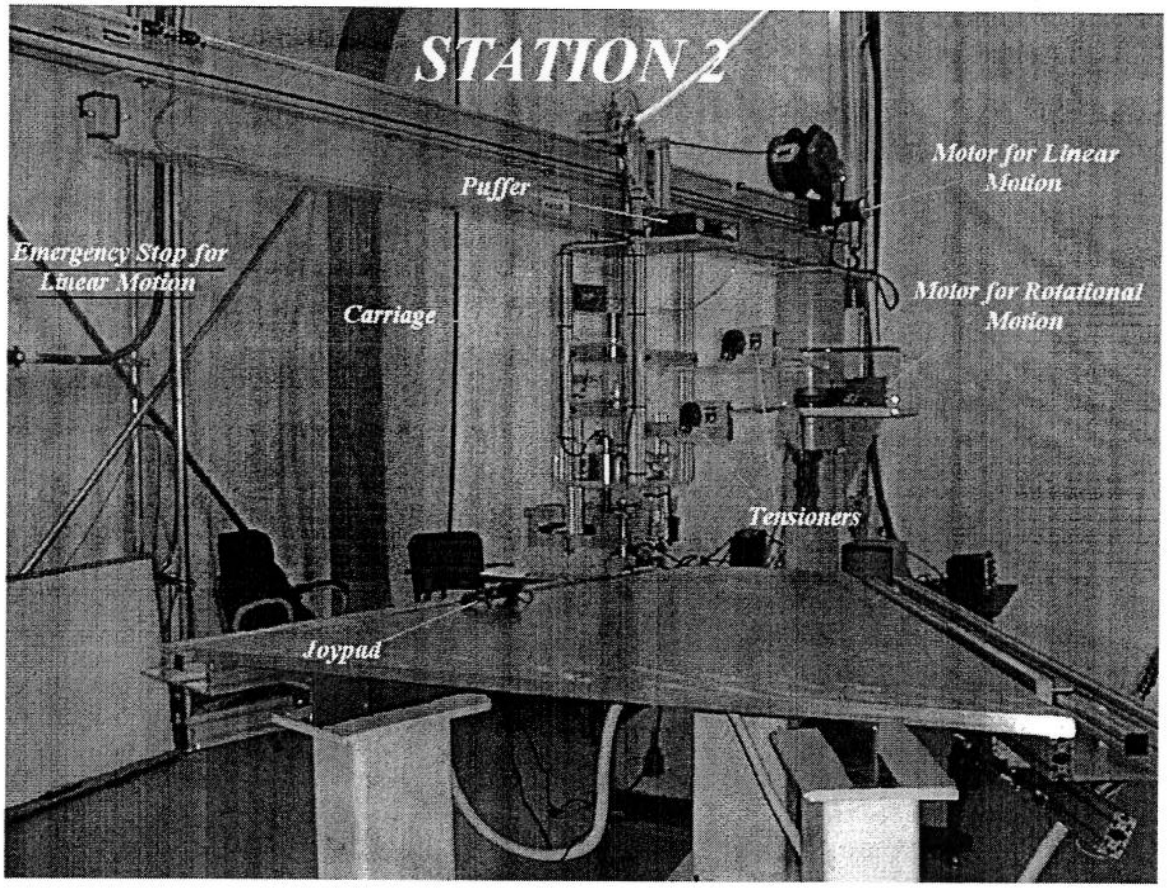

Figure 3 (Station 2, one emergency stop shown)

7. Tension testing setup
   7.1. Turn on the power of the electronics box.
   7.2. Turn on the Gas Dispenser and set the time as 0.03 sec by using Time set buttons on the Dispenser. Then go to the Gas Tank outside and open the valve.
   7.3. Open the "Control " program by clicking on the "Shortcut to Control" icon.

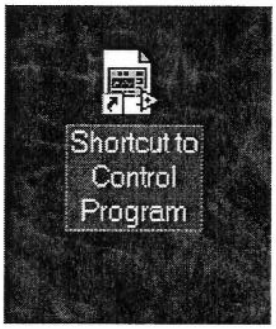

Figure 4 (Shortcut to Control icon)

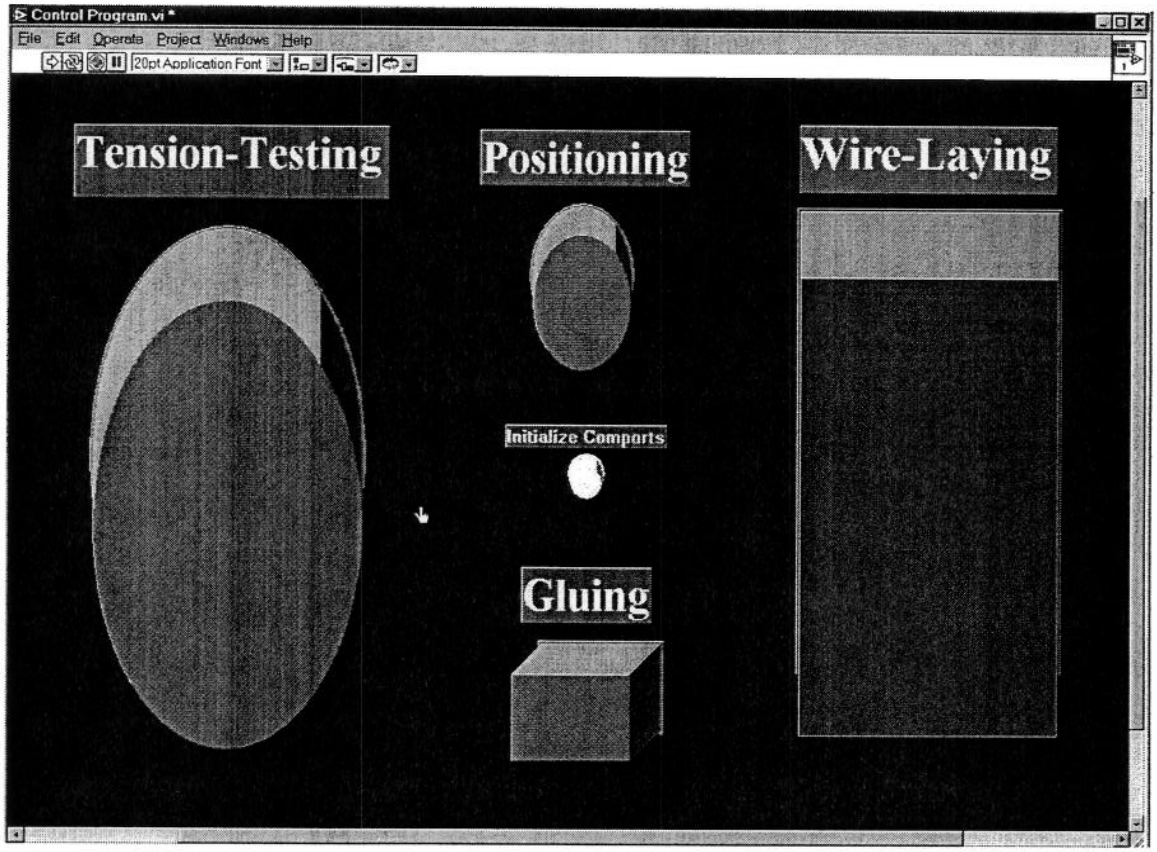

Figure 5 (Control program)

7.4. Run the program and click on the "Positioning" program The positioning program will appear as shown.

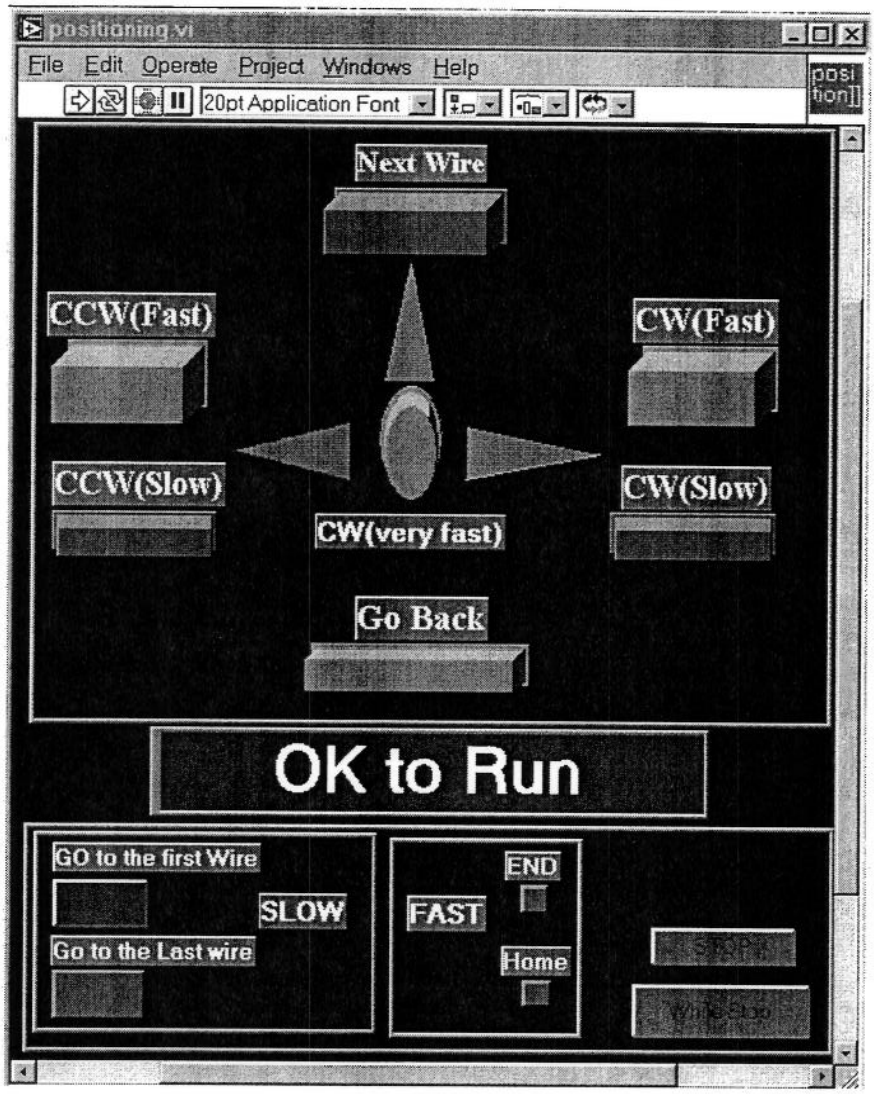

Figure 6 (Positioning program)

7.5. Run the program by clicking the white arrow at the top left corner of the screen. When the program is running the arrow should be black.

7.6. Using the joypad shown below, bring the sensor head to the middle of the first wire. With the oscilloscope connected, adjust the height of the sensor head from the wire, using the 5/16 tool bit (small metal bar). Lay the tool bit lengthwise on the panel, and move the bottom edge of the sensor (figure 4) to the same level as the top of the bit. You should see the signal on the scope become stronger as height is adjusted.

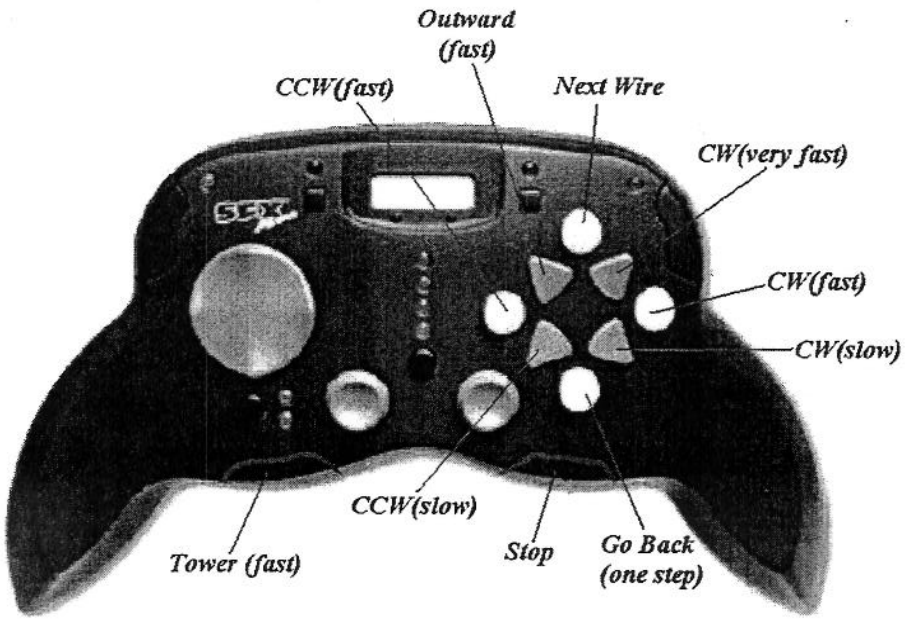

Figure 7 (Joypad)

7.7. Make fine adjustments in height, in position along the wire, and in position across the wire, until the maximum possible signal is indicated by the oscilloscope.

7.8. Once the maximum signal is indicated, check that the puffer outlet head (figure 7) is aimed directly at the wire, and move the sensor toward the tower by approximately one centimeter, (this is one click of the "Go Back" button).

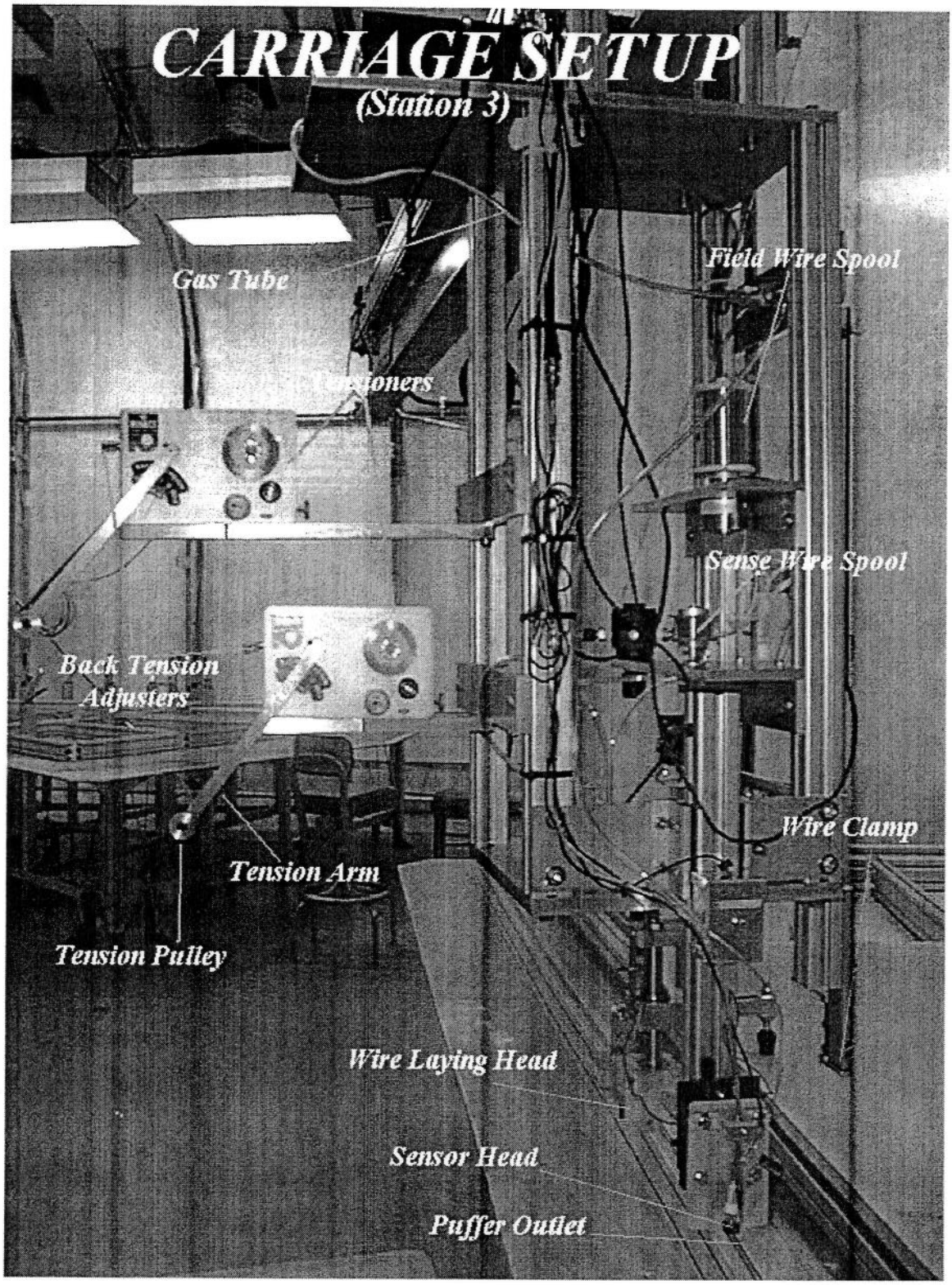

Figure 8 (Carriage Setup for Station 3)

7.9. Close the "Positioning" program.
7.10. Open the tension testing program on the "Control Screen".

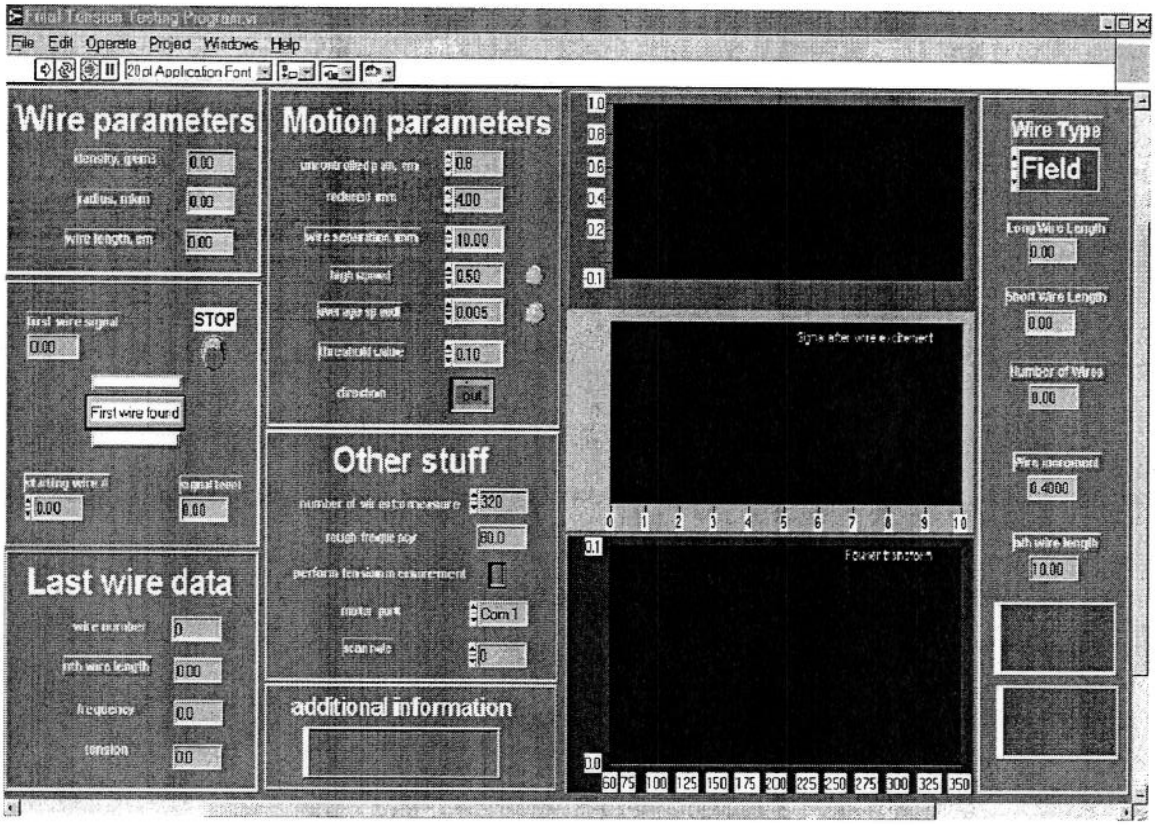

Figure 9 (Tension Testing program)

7.11. Input the number of the wire that you are starting the tension test on.
7.12. In the upper right corner of the screen, click to select the wire type to be tested.
7.13. Press the white arrow at the top left corner of the screen to start the program.
7.14. When prompted, enter the filename for the tension measurements.
7.15. When the indicators around the "First Wire Found" button come on, click on the button. The program should then execute without further assistance until the last wire is tested. Once the last wire has been reached, click the stop button on the program screen.

8. Checking the wire tension measurements
8.1. When the tension measurements have been completed, open the data file spreadsheet to view the measurements.
8.2. Record the numbers of all field wires which have tensions of less than 50 grams, and all anode wires with tensions less than 40 grams.

8.3. Remove and replace all wires with tensions below these cutoffs.
8.4. Remeasure tension on the wires that you have replaced

9. Trouble shooting
   9.1. If at any time a given command is not executed, follow these steps :
      9.1.1. First, go back to the "Control" program and run it.
      9.1.2. Next, click on the "Initialize Comports" button to run the Initializing program.
      9.1.3. Return to the original program that you were running and attempt to run it.
      9.1.4. If the program still does not execute, repeat the above steps.
      9.1.5. If this is not successful, close all LabView programs, switch off the power supply to the motors, and open the HyperTerminals by clicking on their icons. Once the HyperTerminal windows appear, turn the power back on. Once messages as shown below are observed, close the HyperTerminals.

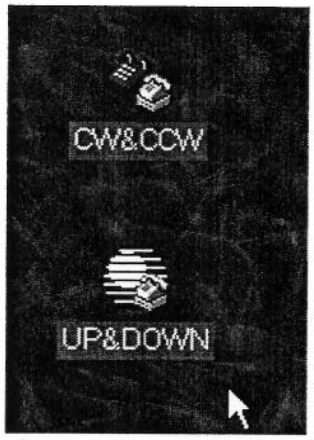

Figure 10 (icons for HyperTerminals)

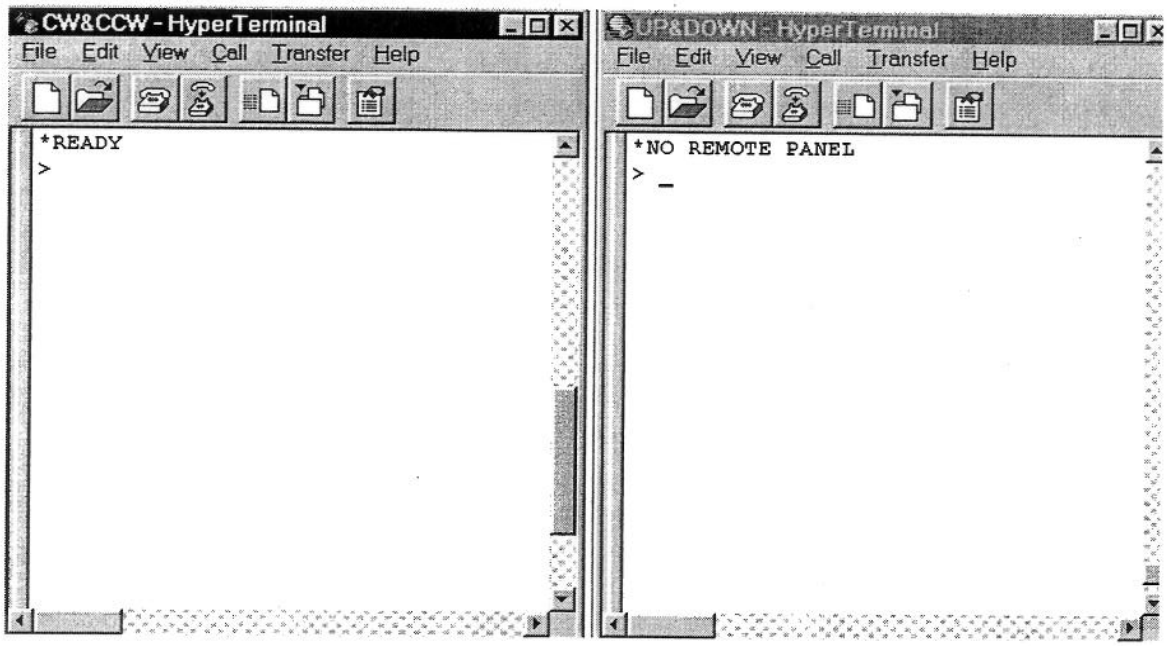

Figure 11 (HyperTerminals)

9.1.6. If the program does not execute after this, shut the computer down and restart it, then return to the HyperTerminals.

9.1.7. Return to the desired program and run it.